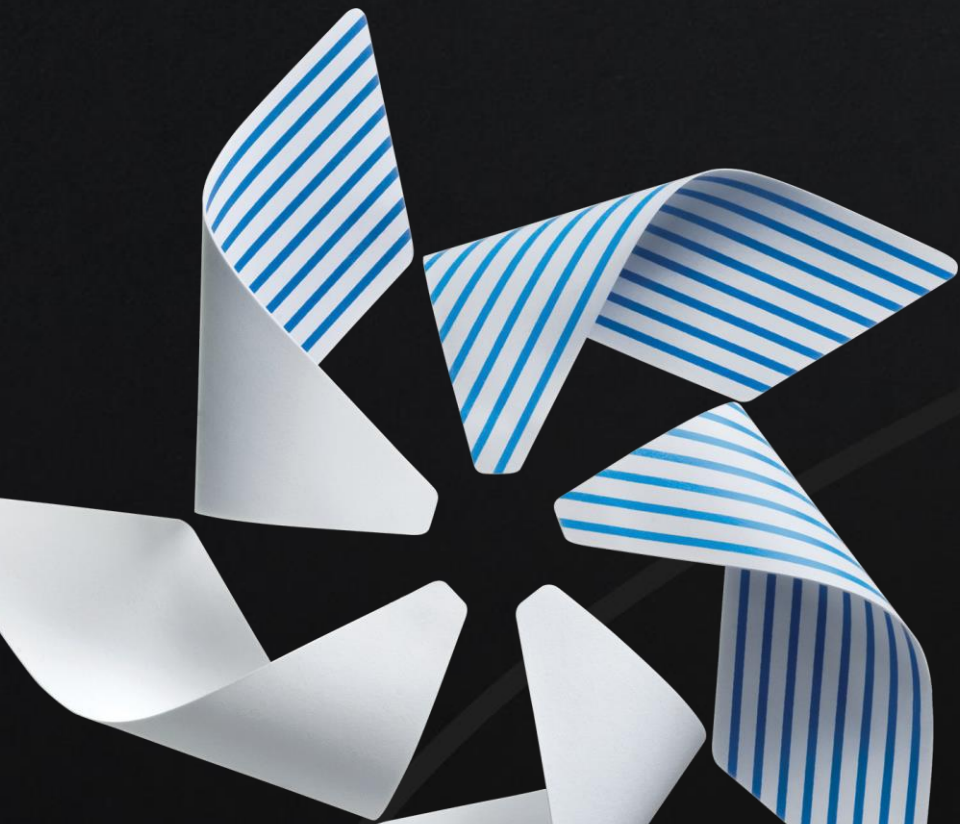


TIZEN™ + IoT



Samsung Electronics Co.
Samsung Research
Kisung Son (손기성)
[eson@samsung.com]

Tizen Evolution

2017



Tizen 4.0

IoT Customized
Platform

2018



Tizen 5.0

Intelligent Service
Platform

2012



Tizen 1.0

Tizen Platform
Released

2013



Tizen 2.2

Mobile Profile
Released

2014



Tizen 2.3

Wearable Profile
Released

2015



Tizen 2.4

TV Profile
Released

2016



Tizen 3.0

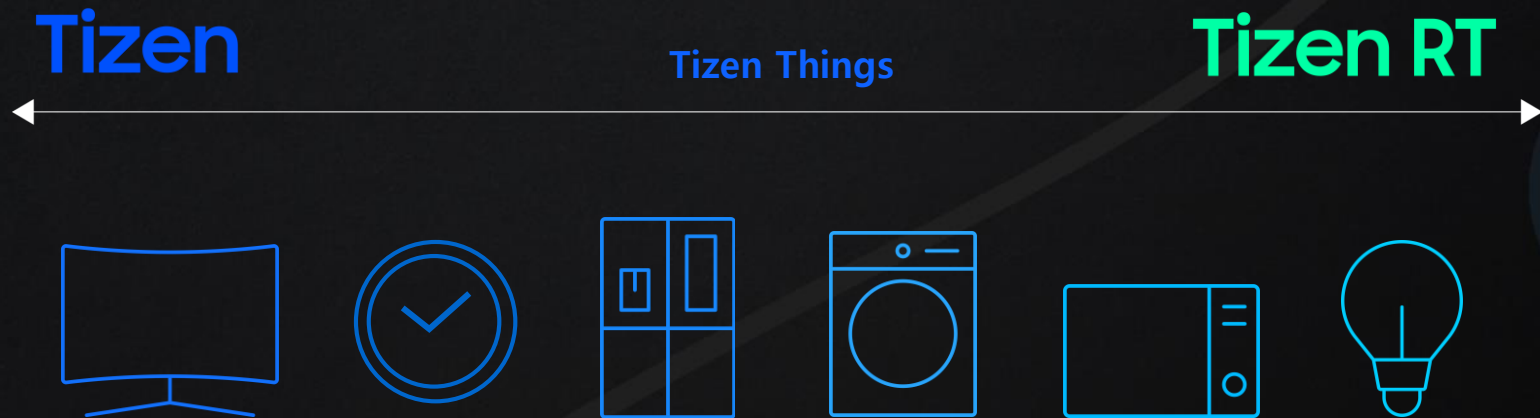
Expanding
into IoT

Tizen : Open Source Platform

Hosted by Linux Foundation

Easy to develop new features or customize for own device

Flexible structure of covering Low-end to High-end device



Software Developer's Requirement

for Smart (IoT) Devices

Platform/OS

- ① Platform verified to commercialization level
- ② Quickly develop Owned Platform / SDK / optimized and customized for my device
- ③ Fast performance on Low-End device

App

- ④ Develop IoT App easily and quickly
- ⑤ Easily connect to other devices and the cloud

Fast Entry to Market

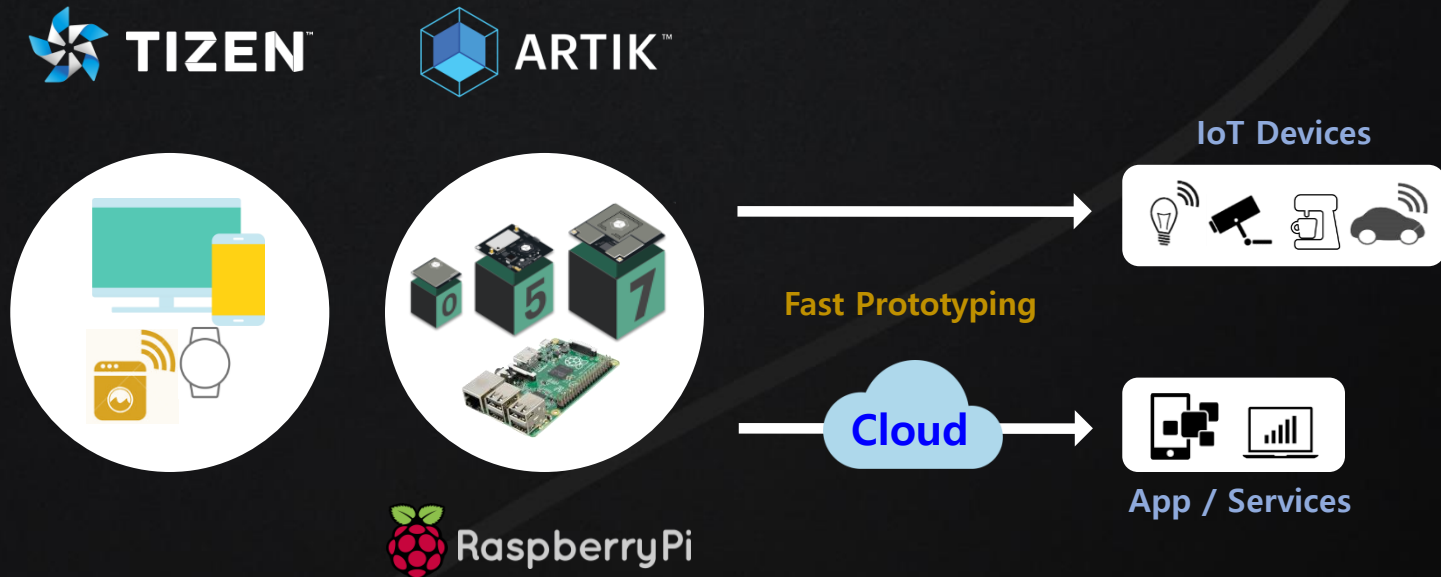
Proven and production quality platform
100 million Tizen devices in the market

100 Million



End-to-End IoT Solution

Quick Start, Easy & Short Product Development, High Scalability



Evolving Rapidly Meeting Challenges!



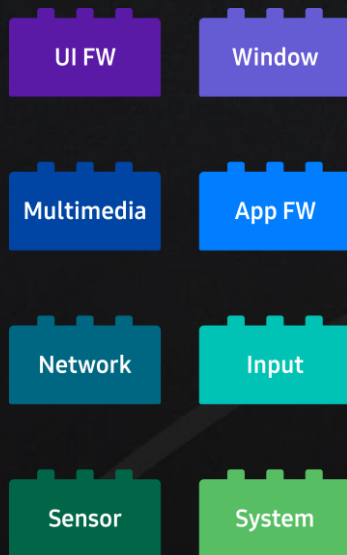
New Device Types Need New Platforms

Configurable Platform with Building Blocks

Configure and create new platforms easily

A unified build system to cover all device types

Platform Building Blocks



Recipe

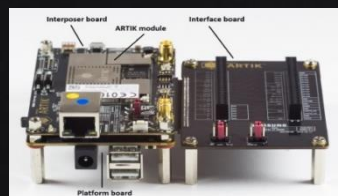
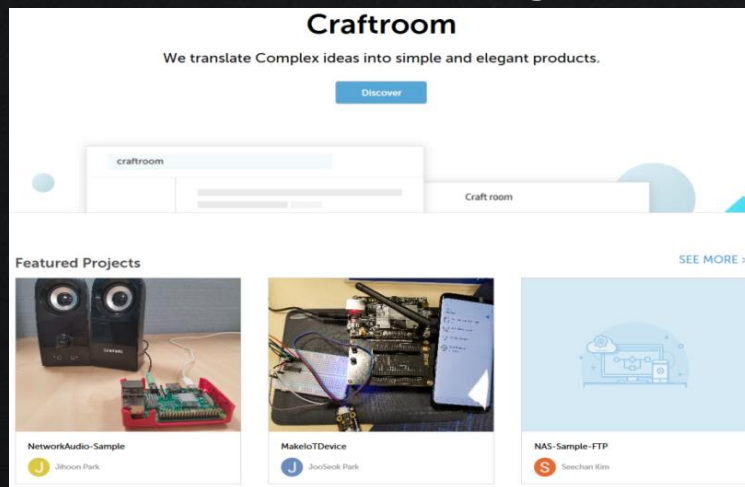


Devices



Develop the Customized Platform for my IoT Device

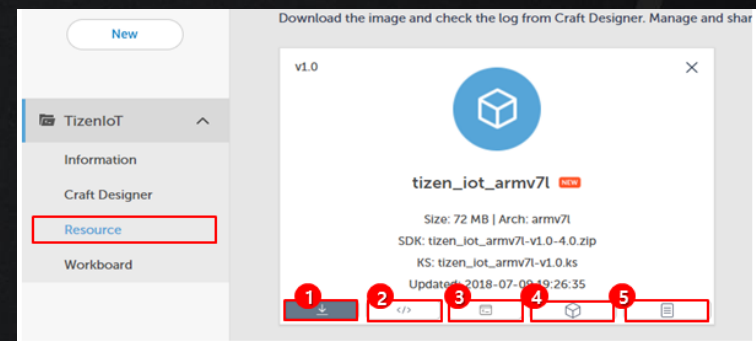
craftroom.tizen.org/



ARTIK 530



Raspberry PI 3



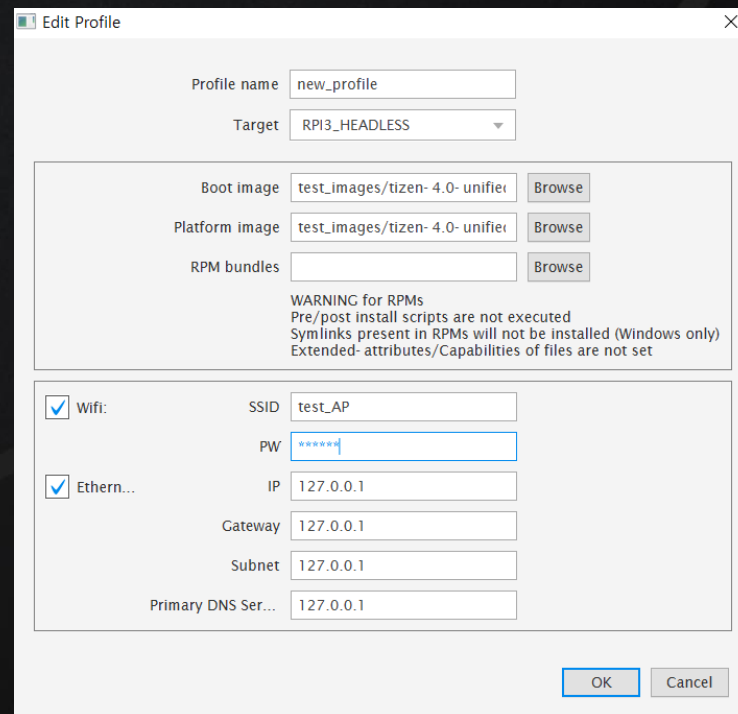
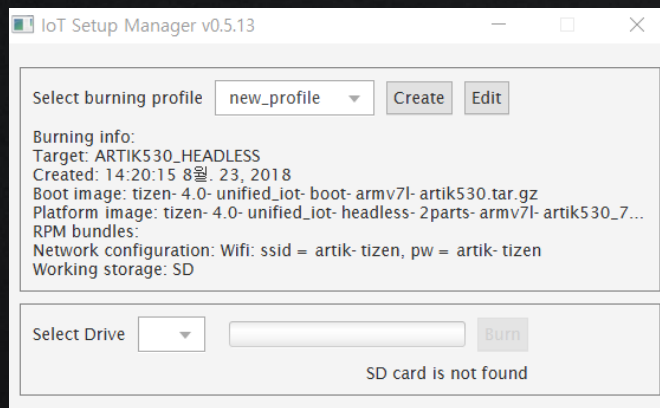
- ① Download the Customized Platform image
- ② Download the Extension SDK for this Platform
- ③ Download the KS file (Kick-Start)
- ④ View the Package list in this Platform/SDK
- ⑤ View the log of build image

<https://developer.tizen.org/development/iot-preview/customized-platform-guide>

<https://craftroom.tizen.org/how-to-create-your-own-customized-platform-image>

Flash the Customized Platform to my IoT Device

Install and run Tizen-Studio, Use the Flashing tool (IoT Setup Manager)



TIZENTM RT

Tizen platform extension for low-end IoT devices



Less than 2MB RAM

Rapid Development

Support for multiple programming languages, run-times

Eclipse based IDE with wide array of tools for development



Tizen Studio 2.5 The Official IDE for Tizen
Visual Studio + .NET, Xamarin



Introduce Tizen .NET



+

 Visual Studio

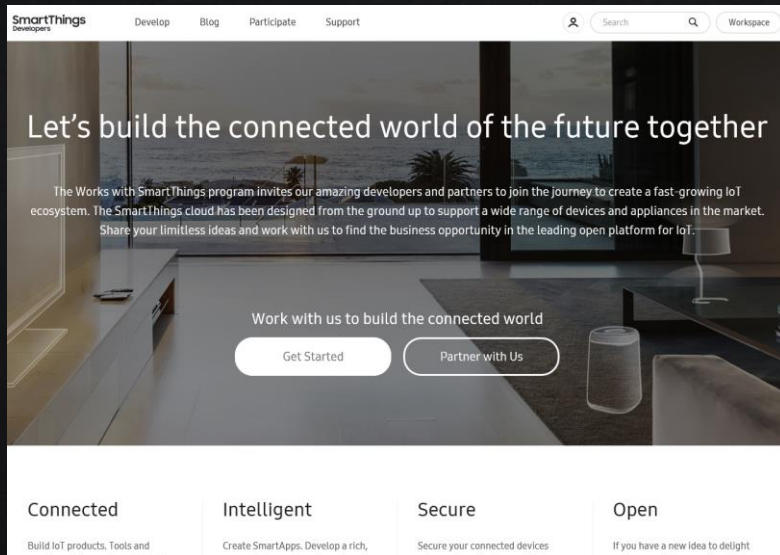
 Xamarin

Microsoft
.NET

Connect to Cloud and other IoT Devices

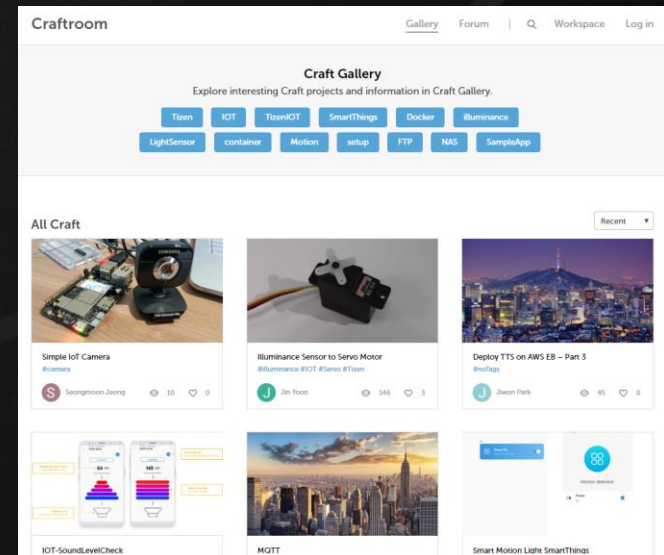
With Tizen .NET you can easily participate and benefit greatly

[Smart Things Cloud Site]



smarthings.developer.samsung.com

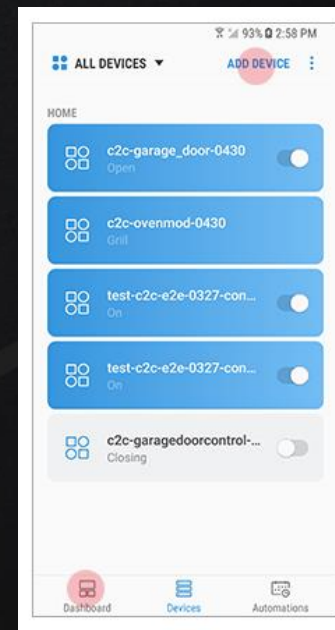
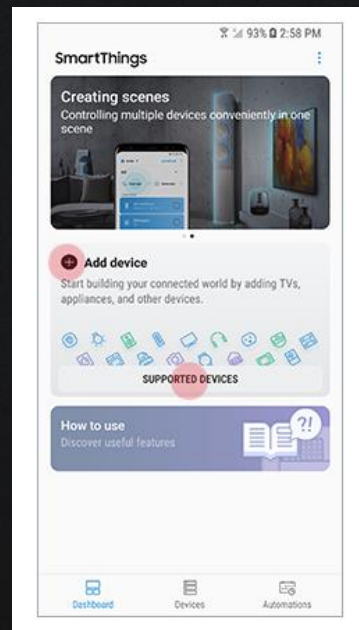
[Education/Sample contents]



craftroom.tizen.org/gallery

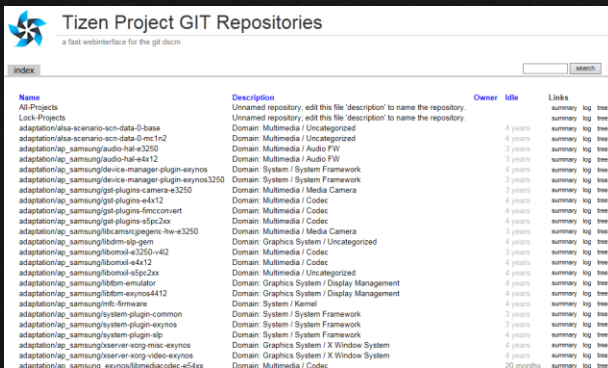
<https://developer.tizen.org/development/iot-preview/getting-started-tizen/setting-up-smarthings-cloud>

Smart Things App on Smart phone

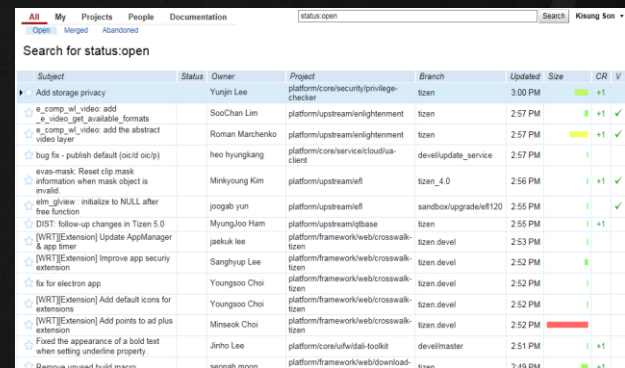


<https://craftroom.tizen.org/iot-soundlevelcheck>
https://craftroom.tizen.org/illuminance_to_servo
<https://craftroom.tizen.org/iotdev-windowblind>
<https://craftroom.tizen.org/iotdev-light>
<https://craftroom.tizen.org/iotdevice-co2meter>

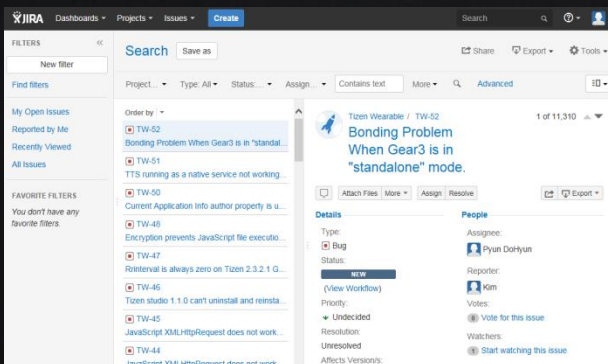
Tizen Platform Open Source Sites



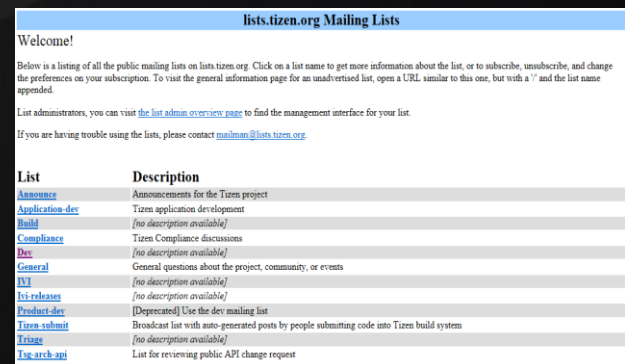
Git : git.tizen.org/



Review : review.tizen.org/

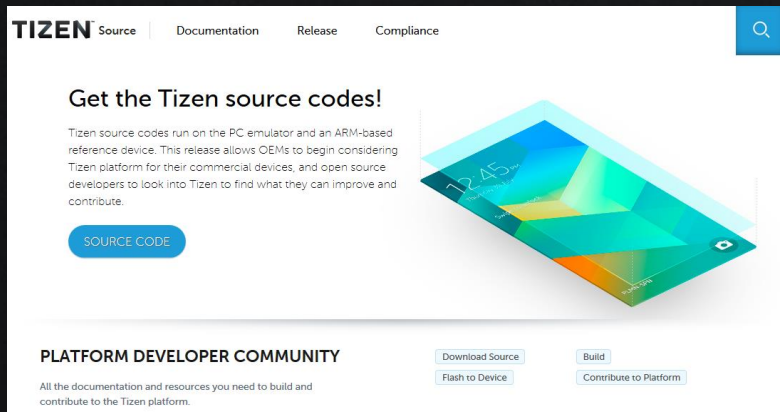


Issue Tracking : bugs.tizen.org/

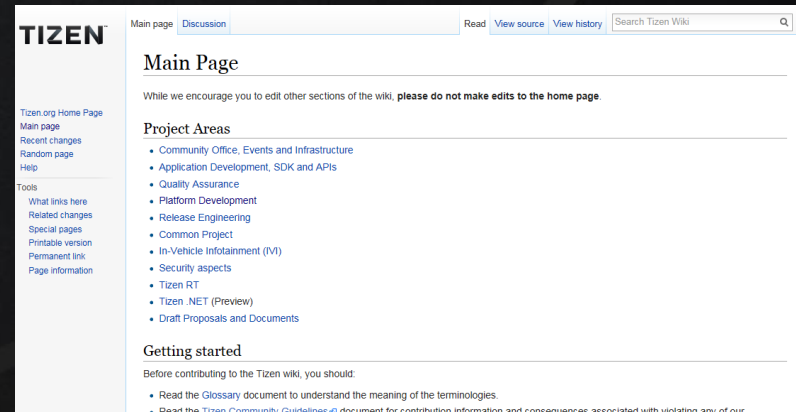


Mailing list : lists.tizen.org/

Tizen Platform Development Sites

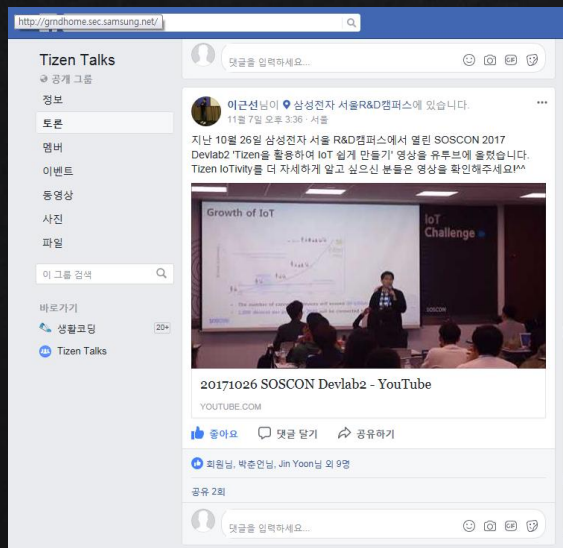


source.tizen.org/

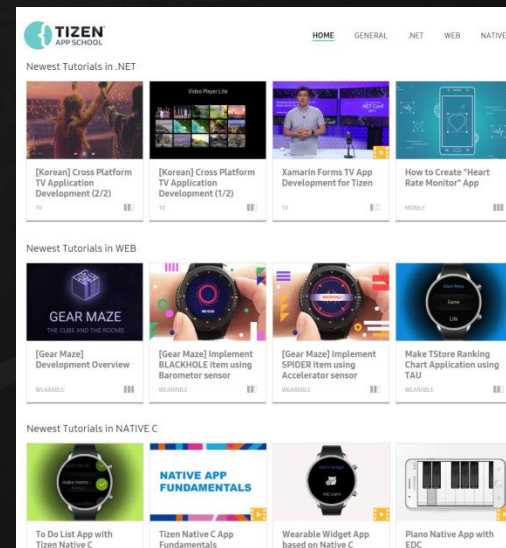


wiki.tizen.org/

Tizen Facebook & Education (online)



www.facebook.com/groups/tizentalks/



tizenappschool.org/

TizenRT Open Source Site

Github.com/Samsung/tizenrt

The screenshot shows the GitHub repository for Samsung TizenRT. The repository name is "Samsung / TizenRT" with 50 watches, 190 stars, and 231 forks. The description states: "TizenRT is a lightweight RTOS-based platform to support low-end IoT devices". It has 5,096 commits, 1 branch, 3 releases, and 99 contributors. The file list includes:

- apps: Merge pull request #2078 from jsdosa/add_defensecode
- build: media: Add missed stream buffer config
- docs: iotjs: Add HowTo page to use IoT.js
- external: external/grpc: Update gRPC README.md
- framework: Merge pull request #2068 from Hyunjun8S/cleanup
- lib: libc/math: fix warning
- os: Merge pull request #2051 from jeongarmy/eventloop
- tools: tools/fs: update romfs README to install genromfs from source
- .clang-format: .clang-format: Remove column limit
- .gitignore: lwip: version up lwip 2.0.2
- .travis.yml: Add "qemu/build_test" build config to travis CI
- LICENSE: Add LICENSE
- README.md: README.md: Support TizenRT development on Mac OS X HOST

The screenshot shows the README.md file for TizenRT. It includes the following sections:

- TizenRT**: A section with a license badge (Apache 2.0) and a build status badge (passing). The text describes TizenRT as a lightweight RTOS-based platform for low-end IoT devices and directs users to the Wiki for documentation.
- Contents**: A list of links for Quick Start, Supported Board / Emulator, and Configuration Sets.
- Quick Start**: A section with a sub-section "Getting the toolchain". It provides instructions on installing the OS-specific toolchain for Linux and Mac, and getting the build in binaries and libraries. It includes a code block for setting the environment:

```
tar xvf gcc-arm-none-eabi-6-2017-q1-update-[OS Type].tar.bz2
export PATH=<Your Toolchain PATH>:$PATH
```

Below the code block, it states: "Be aware that recommended toolchain is fully working on 64bits machine."

- Getting the sources**: A section header for the next part of the guide.

Tizen Development Environment

Platform

[Ubuntu 16.04]

- CLI (Command Line Interface)
- Tizen Studio : Build for Tizen 2.4

App

[Ubuntu 16.04]

[Windows 7/8/10]

[macOS 10.11~13]

[Unity]

- Native (C/C++) : Tizen Studio
- C# / Xamarin : Visual Studio, Visual Studio Code
- Game : Unity, Cocos2D
- Web : Tizen Studio



Thank you